REMARKS

Claims 20-26, 32-39 and 58-80 are now pending in the present application. Claims 20 and 32 have been amended and claims 1-19, 27-31 and 40-57 have been canceled by the present Amendment or by a previous Amendment. Claims 20, 32, 62 and 69 are independent. Reconsideration of this application, as amended, is respectfully requested.

Information Disclosure Statement

Information Disclosure Statements (IDSs) were submitted to the U.S. Patent and Trademark Office on September 20, 2001 and November 8, 2001. Applicants acknowledge receipt of the initialed PTO-1449 forms from these IDSs. However, an IDS has also been submitted to the U.S. patent and Trademark Office on September 20, 2004. **It is respectfully requested that the Examiner initial the PTO-1449 form attached thereto and forward a copy with the next Office Communication in order to make the reference cited thereon of record in the present application.**

Reasons for Entry of Amendments

It is respectfully requested that the present amendments be entered into the official file in view of the fact that the amendments to the claims automatically place the present application into condition for allowance. In the alternative, if the Examiner does not believe that the application is in condition for allowance, it is requested that the Examiner enter the present amendments for the

purposes of appeal. The amendments to the claims simplify the issues on appeal by amending independent claims 20 and 32 to include the subject matter of dependent claims 56 and 57, respectively. Claims 56 and 57 have been canceled. In view of this, the Examiner's rejection under 35 U.S.C. § 102(e) in view of the Banno et al. reference has been rendered moot.

Rejections Under 35 U.S.C. §§ 102 and 103

Claims 20-24, 32-37, 58 and 59 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Banno et al., U.S. Patent No. 6,511,545. Claims 56, 57, 60, 61, 62-66, 69-74 and 77-80 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Banno et al. Claims 25, 26, 38, 39, 67, 68, 75 and 76 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Banno et al. in view of the admitted prior art. These rejections are respectfully traversed.

At the outset, as the Examiner will note, independent claims 20 and 32 have been amended to include the subject matter of dependent claims 56 and 57, respectively. Dependent claims 56 and 57 have been canceled. Since dependent claims 56 and 57 were rejected by the Examiner under 35 U.S.C. § 103 in view of the Banno et al. reference, and this subject matter has now been added to independent claims 20 and 32, respectively, the Examiner's rejection under 35 U.S.C. § 102(e) in view of the Banno et al. reference has been rendered moot. In view of this, only the Examiner's rejections under 35 U.S.C. § 103 will be discussed below.

The present invention is directed to an apparatus for providing a substrate with viscous medium. Independent claim 20 recites a combination of elements including "application means for applying the viscous medium onto the substrate at a plurality of locations" and "inspection

means for inspecting the results of said application at more than one of the plurality of locations after completion of the application at the plurality of locations." In addition, independent claim 20 recites "processing means for determining application errors based on said inspection, said processing means comprising: estimating means for estimating the time required for performing corrective action for each of the determined errors; and calculating means for calculating the overall time required for corrective action of all determined errors."

Independent claim 32 of the present invention recites a combination of elements including "an applicator, said applicator applying the viscous medium onto the substrate at a plurality of locations" and "an inspection device, said inspection device inspecting the results of said application at more than one of the plurality of locations after completion of the application at the plurality of locations." In addition, independent claim 32 recites "a processor, said processor determining application errors based on said inspection, estimating the time required for performing corrective action for each of the determined errors and calculating the overall time required for corrective action of all determined errors."

With the above structure according to the present invention, it is possible to inspect more than one location on a substrate after completion of an application of viscous medium at a plurality of locations. In addition, since it is possible to calculate the time required to perform corrective action of all determined errors, correction can be performed only in situations where the time for correction is not too long. Applicants respectfully submit that the Banno et al. reference relied on by the Examiner fails to teach or suggest the presently claimed invention and therefore cannot accomplish the above advantages of the present invention.

In particular, referring to the Banno et al. reference, this reference discloses an ejection nozzle 1501 of an ink-jet ejecting device and an optical system 1502 for detecting information associated with the droplet. Referring to FIG. 23 of Banno et al., the optical system 1502 is mounted adjacent to the ejection nozzle 1501. The device of Banno et al. also includes an ejection condition controlling circuit 1507, an ejection condition correcting circuit 1506, a comparator 1505 and an optical information detecting circuit 1504.

As can be clearly understood from column 27, line 66 through column 28, line 26 of Banno et al., the device of Banno et al. optically monitors the ejection process at a particular location until the size of a particular droplet reaches an optimum value. In view of this, it should be understood that in Banno et al., the droplets are monitored simultaneously with the ejection operation. However, in the present invention, the inspection occurs "after completion of the application at the plurality of locations." In addition, the inspection means inspects the results of the application after completion of the application "at more than one of the plurality of locations." Since the Banno et al. reference performs a simultaneous ejecting and inspection operation, Applicants respectfully submit that the Banno et al. reference fails to anticipate independent claims 20 and 32 of the present invention.

In the Examiner's Office Action dated January 11, 2005, on page 3, paragraph 4, the Examiner asserts that the above aspects of the present invention are disclosed at column 34, lines 20-43 of Banno et al. This portion of Banno et al. has been reproduced below as follows:

> A droplet was deposited on each of 100 unit cells on a 10x10 matrix-electrode substrate according to the technique described above. In almost all cells, the thickness of the droplet obtained after the first ejecting operation was in an

> allowable range. In a few percent of unit cells, however, the thickness was greater than the upper acceptable limit. In the example shown in FIG. 28A, an extremely great amount of droplet was ejected in one ejecting operation and thus the droplet thickness became greater than the acceptable upper limit. In this case, the entire droplet was sucked via the removal nozzle, and the another droplet was ejected under corrected conditions. As a result of the re-ejection, a droplet having a thickness within the allowable range was deposited as shown on the right side of FIG. 28A. In the example shown in FIG. 28B, the wettability of the substrate used was unusually low, and the droplet thickness became greater than the acceptable upper limit although the ejected amount was proper. Also in this case, re-ejection was performed in a manner similar to that in the case of FIG. 28A, and the resultant thickness fell within the allowable range. (emphasis added).

Applicants respectfully submit that this portion of Banno et al. fails to disclose inspecting droplets "after completion of the application at the plurality of locations" as recited in independent claims 20 and 32. All this portion of Banno et al. indicates is that droplets were deposited on a 10x10 matrix. There is no disclosure that would indicate that the inspection occurs after completion of the deposits on the 10x10 matrix. This becomes clear, since the above portion of Banno et al. states "according to the technique described above." The "technique described above" in Banno et al. inspects each droplet while the nozzle 1501 is located at a particular location. There is no indication that the inspection occurs after completion of the deposits as in the presently claimed invention.

In the above portion of Banno et al., Figures 28A and 28B are two examples of correction of a droplet. The droplets are not inspected and corrected "after completion of the application at the plurality of locations." The droplets are inspected and corrected one application location at a time. In view of this, the Banno et al. reference fails to disclose this aspect of the present invention.

With regard to FIGS. 32B-33D of Banno et al., a plurality of droplets are applied between electrodes 2 and 3 in order to connect the electrodes together. Presumably, the device of Banno et al. would also inspect each one of the droplets in the same manner described above. In view of this, Banno et al. only discloses inspecting an application simultaneously with the ejection of the material and not at the completion of the application as in the presently claimed invention. Furthermore, to the extent the last droplet is considered to be "after completion of the application" as recited in independent claims 20 and 32 of the present invention, Applicants submit that the inspection would only occur for the last droplet and therefore the inspection would not be "at more than one of the plurality of locations" after the completion of the application as recited in independent claims 20 and 32 of the present invention. Accordingly, the Banno et al. reference fails to disclose this aspect of the present invention for this additional reason.

Referring to page 5, last paragraph of the Examiner's Office Action, the Examiner recognizes that Banno et al. fails to disclose estimating the time required for performing corrective action for each of the determined errors and the overall time required for corrective action of all determined errors as recited in independent claims 20 and 32. However, the Examiner has taken the position that this would be an obvious modification of Banno et al. Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness. The Examiner is directed to MPEP § 2142, third paragraph (May 2004) which states the following:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the

> art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

In the present case, Applicant respectfully submits that the Examiner has failed to meet the burden in establishing a *prima facie* case of obviousness, since the Examiner has not provided any suggestion or motivation in the prior art to modify the combination of references relied on. The Examiner must first establish a *prima facie* case of obviousness before the burden shifts to the Applicant to rebut the *prima facie* case. The Examiner is shifting the burden to Applicant to prove non-obviousness without first establishing obviousness.

Referring to paragraph 4 of MPEP § 2142, the Examiner is placed with the initial burden "to provide some suggestion of the desirability of doing what the inventor has done." The Examiner must show that the references expressly or impliedly suggest the claimed invention or a convincing line reasoning should be set forth as to why the modification is obvious. The Examiner has provided no suggestion or convincing line of reasoning in the present case. Accordingly, the Examiner's burden has not been satisfied.

In the present case, the Examiner's entire rationale for modifying the Banno et al. reference is as follows:

> since the corrective actions of the Banno et al. apparatus are essentially controlled by the processor means, the skilled artisan would have been appreciative of the fact that the functionalization of error correction upon the time required for the apparatus to facilitate such correction would have been the result of routine experimentation by one of ordinary skill in the process control arts. Furthermore, because all automated electronic process control is based upon "clock" cycling, the modification of the Banno et al. apparatus to take into

account such a temporal function would be the result of optimization in pursuit of process efficiency and robustness.

Applicants respectfully submit that these conclusionary statements made by the Examiner are not a proper basis to substantiate an obviousness rejection. None of the above comments from the Examiner appear in the prior art reference to Banno et al. The Banno et al. reference provides absolutely no teaching of calculating any time parameter and the Examiner has not provided any teaching in the prior art that would suggest one having ordinary skill in the art to calculate any time parameter. In view of this, the Examiner has not established a *prima facie* case of obviousness.

Recent Federal Circuit case law precedent makes it explicitly clear that the factual question of motivation is material to patentability and cannot be resolved on subjective belief and unknown authority, but must be read on the objective evidence of the record. Federal Circuit case law precedent further requires that "common sense and common knowledge" alone is improper evidence in support of an obviousness rejection.

The Examiner purports a common sense and common knowledge reason for the deficiencies of Banno et al., in other words, stating that Banno et al. would have appreciated the fact that the time for correcting errors can be optimized. However, common sense and knowledge are not objective evidence of record, as the Federal Circuit explains, but are in fact commensurate with subjective belief and unknown authority. Therefore, the Examiner has failed to meet the legal requirements to substantiate the obviousness rejection.

For an illuminating discussion on the burden placed on an Examiner to establish objective factual findings of record, the Examiner is referred to the Federal Circuit decision of *In re Lee*, 61 USPQ2d 1430 (CAFC 2002).

In re Lee involved an appeal of a decision of the Board of Patent Appeals in which *Lee* argued that the Examiner failed to provide a source of a teaching, suggestion, or motivation to combine the applied prior art to arrive at the claimed invention. The Board responded to these arguments by ruling that "[t]he conclusion of obviousness may be made from common knowledge and common sense of a person of ordinary skill in the art without any specific hint or suggestion in a particular reference." *Id.* at 1432. The Federal Circuit overturned the Board's decision "for failure to meet the adjudicative standards for review under the administrative procedure act." *Id.* at 1431. The Federal Circuit further stated that "the factual inquiry whether to combine references must be thorough and searching...it must be based on objective evidence of record...[t]his precedent has been reinforced in a myriad of decisions and cannot be dispensed with." *Id.* at 1433. The Court also stated that the USPTO is "not free to refuse to follow Circuit precedent" and "cannot rely on conclusionary statements when dealing with particular combinations of prior art and specific claims." *Id.* at 1434.

As stated herein above, the Examiner's asserted modification of Banno et al., and the lack of factual support thereof comports very closely to the analysis disapproved by the Federal Circuit in *In re Lee*. As such, the Examiner's failure to provide factual support for a teaching, suggestion or motivation to modify Banno et al. constitutes legal error.

With regard to the Examiner's comments regarding the modification of Banno et al. as being "routine experimentation" or "the result of optimization," Applicants submit that the Examiner has not provided any indication that the prior art was aware of calculating the time required to perform corrective action. This treatment by the Examiner is improper. "If there is no evidence that a person of ordinary skill in the art at the time of applicants' invention would have expected problem to exist at all, it is not proper to conclude that invention which solves this problem, which is claimed as an improvement of prior art device, would have been obvious to that hypothetical person." *In re Nomiya*, 184 U.S.P.Q. 607, 608 (CCPA 1975). In the present case, the Banno et al. reference fails to provide any hint of calculating the time to perform corrective action. This awareness appears only in Applicant's own disclosure. "There must be a reason apparent at time invention was made to person of ordinary skill in the art for applying the teaching at hand, or use of teaching as evidence of obviousness will entail prohibited hindsight." *Id.* at 608. This is exactly what the Examiner is doing in the present case. The Examiner has not provided any evidence of the awareness of a problem in the prior art and therefore one having ordinary skill in the art would not recognize to look for a solution. Accordingly, the Examiner is conducting prohibited hindsight.

In addition, "a patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified." *In re Sponnoble*, 160 U.S.P.Q. 237, 243 (CCPA 1969). Accordingly, the Examiner must first provide evidence that one having ordinary skill in the art was aware of a problem before the Examiner can modify a prior

art reference to arrive at the present invention. Since the Examiner has not provided evidence of an art recognized problem, the Examiner's rejection is improper and should be withdrawn.

In view of the above, Applicants respectfully submit that independent claims 20 and 32 are non-obvious over the Banno et al. reference. Therefore, the Examiner's rejection under 35 U.S.C. § 103 in view of the Banno et al. reference is improper and should be withdrawn.

With regard to independent claims 62 and 69, these claims also recite "processing means" and "a processor," respectively, in the same manner as in independent claims 20 and 32, respectively. In view of this, independent claims 62 and 69 are allowable for the same reasons mentioned above with regard to independent claims 20 and 32.

With regard to dependent claims 21-26, 33-39, 58-61, 63-68 and 70-80, Applicants respectfully submit that these claims are allowable due to their respective dependence on independent claims 20, 32, 62 and 69, as well as due to the additional recitations in these claims.

In view of the above amendments and remarks, Applicants respectfully submit that claims 20-26, 32-39 and 58-80 clearly define the present invention over the Banno et al. reference relied on by the Examiner. Accordingly, reconsideration and withdrawal of the Examiners' rejections under 35 U.S.C. §§ 102 and 103 are respectfully requested.

CONCLUSION

Since the remaining references cited by the Examiner have not been utilized to reject the claims, but merely to show the state of the art, no further comments are deemed necessary with respect thereto.

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently pending rejections and that they be withdrawn.

It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Paul C. Lewis, Registration No. 43,368 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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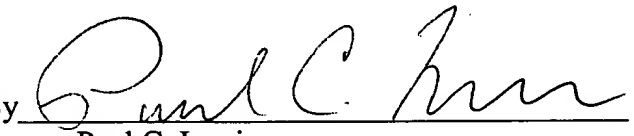
By 

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